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Exploring the Links between Culture, Locus of Control and Self-Compassion and their Roles in the Formation of Weight Stigmatization

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The aim of this study was to examine the relationship between culture, locus of control, and self-compassion in conceptualizing weight stigmatization. Participants (N = 138) completed self-administered questionnaires, including: the Attitude Towards Obese Persons Scale (ATOP), Beliefs About Obese Persons Scale (BAOP), Anti-Fat Attitudes Scale (AFA), Multidimensional Health Locus of Control Scale (MHLC-Form B), Self-Compassion Scale (SCS), Individualism/Collectivism Scale (IND/COL), and Marlowe Crown Social Desirability Scale (MCSD Short-Form). Results suggest that self-compassion is a significant negative predictor of weight stigmatization, and had the potential to reduce weight bias. Collectivism was a significant negative predictor of weight stigmatization, and another variable that may reduce weight bias. Internal locus of control was a significant negative predictor of weight stigmatization, and a potential buffer of weight bias. These findings have implications for decreasing anti-fat prejudice and reducing weight stigmatization.

Keywords: culture, control, self-compassion, weight, stigma

Social identity is largely defined by physical appearance, as most societies believe that thinness and muscularity are determinants of success (Klaczynski, Daniel, & Keller, 2009; Puhl & Brownell, 2003). As a result, characteristics attributed to overweight people convey a devalued social identity in many different social contexts, such as employment, health care settings, and interpersonal relationships (Puhl & Brownell, 2003). In fact, children and adults view obese people more negatively than ethnic minorities, people with physical disabilities, facial disfigurements, and amputees (Hebl, King, & Lin, 2004; Klaczynski et al., 2009). Moreover, weight bias is so widespread that it occurs irrespective of an individual's own body weight, as overweight individuals themselves also express stigmatizing beliefs about others who are overweight (Puhl & Brownell, 2003; Puhl, Moss-Racusin, Schwartz, & Brownell, 2008). Thus, despite the shared human suffering, not even the individuals themselves who are suffering from marginalization in relation to weight are able to understand each other's pain (Savoy, Almedia, & Boxer, 2012).

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Weight bias is associated with a number of psychological variables, including diminished self-esteem, negative body image, limited social networks, comprised quality of life, and unemployment. Further, these social factors can lead to increased instances of depressive episodes, suicidal ideation, and suicide attempts (Latner, Stunkard & Wilson, 2005; Maclean et al., 2009; McHugh & Kasardo 2012; Puhl et al., 2008). Obesity is influenced by a variety of factors that include individual behavioral decisions, genetic or biological predispositions, and broader societal factors such as the marketing of low-cost unhealthy foods, agricultural policies, and neighborhood resources for healthy food (Bullock & Stambush, 2011; Niederdeppe, Shapiro, & Porticella, 2011). Despite this, people continue to believe that weight is easily controlled through exercise and reduced food consumption (Crandall & Schiffhauer, 1994; Maclean et al., 2009).

Beliefs Regarding the Controllability of Weight

Despite the psychological problems associated with obesity, individuals in society continue to attribute weight to internal controllable factors, resulting in negative stigma towards overweight and

obese individuals (Elfhag & Rössner, 2005). There is heavy emphasis on behavioral (lifestyle) approaches to obesity prevention, both in health sciences curricula and in health service programs (Maclean et al., 2009). These programs focus on the individual as the locus of change, by making the client personally responsible for all aspects of their situation, as opposed to more environmental or socio-ecological approaches. Health providers and obesity researchers often propose that losing weight is essentially about self-discipline and focus, despite the potential for social and environmental conditions such as poverty and living in high crime areas to make exercise and healthy eating regimes challenging (Maclean et al., 2009).

The ideological belief that people should be held accountable for the consequences of their actions can be explained by the attribution theory (Weiner, 1986), which proposes that the causal attributions people generally employ involve three dimensions (i.e., locus of control, controllability, and stability) that are relevant to the problems of weight stigmatization (Jeong, 2008). Attributions of controllability can result in stigma towards overweight individuals because they are perceived to be responsible for their own condition (Crandall et al., 2001; McHugh & Kasardo, 2012).

Locus of Control

The concept of locus of control (LOC) originated as a fundamental element of the social learning theory of personality (Rotter, 1966). LOC refers to the extent to which a person believes that reinforcement is dependent upon his or her own behavior or personal qualities. People with high internal LOC believe that they will receive reinforcement based upon their own behavior and actions. In contrast, people with high external LOC believe that regardless of their own behavior and actions, their fate rests in the hands of chance, or other more powerful bodies (Rotter, 1966). In other words, internal LOC refers to the perception of positive or negative events as being the consequence of one's own actions, whereas external LOC refers to the perception of positive or negative events as being unrelated to one's own behavior beyond personal control (McGinnies, Nordholm, Ward, & Bhanthumnavin, 1974). Studies have shown that internal and external beliefs about the controllability of one's weight are related to the formation of weight bias (e.g., Teixeira, Going, Sardinha, & Lohman, 2005).

Culture and LOC

Physical attractiveness is less likely to be an evaluative cue in cultural contexts where collectivism, rather than individualism, is the foundation for the dominant system of values (Dion, 1990; Shaffer, Crepaz, & Sun, 2000). In collectivist cultures, the group rather than the individual is emphasized. This suggests that social judgments, such as first impressions of others, are more likely to be based on group-related attributes (e.g., family or position in a social network), rather than on personal unique elements (e.g., physical attractiveness; Dion, 1990). In collectivistic cultures, the unit of social behavior is often a group rather than an individual, as compared to individualistic cultures where groups are actually more autonomous (Yamaguchi, Gelfand, Ohashi, & Zemba, 2005).

Markus and Kitayama's (1991) research found that Western cultures seek to relate the self as distinct from others, whereas Eastern cultures view the self as intertwined with others. More specifically, people in Asian collectivistic cultures are said to have an interdependent self-concept and thus emphasize concerns with interpersonal connectedness, caring for others, and social conformity. In contrast, Western individualistic cultures are said to have an independent self-concept that emphasizes concerns with autonomy, meeting personal needs, and individual uniqueness.

Individualistic and collectivist dimensions have been used to describe, explain, and predict differences in attitudes, values, and behaviors (Green, Deschamps, & Paez, 2005). A meta-analysis of cross-cultural research supports the idea that countries differ systematically in individualism and collectivism (Oyserman & Lee, 2008). As assessed through scale values, North Americans are higher in individualism and lower in collectivism than people from Asian countries such as China (Oyserman, Coon, & Kemmelmeier, 2002). Reviews of qualitative studies found that differences in individualism and collectivism are correlated with systematic differences in self-concept, nature of relationships with others, and cognitive style (Oyserman, 1993; Oyserman & Lee, 2008). These findings suggest that cognition is

affected by the social system in which one is raised (Yamaguchi et al., 2005). Further, Han (2013) found that Chinese infants were quicker to recognize others' faces (e.g., mother, father, or other caregiver) in comparison to their own, whereas Caucasian infants showed the opposite. The authors suggested that this could have been due to the fact that, in collectivist cultures, people tend to consider social context rather than individual/self context. The findings and suggestions of Han (2013) may also relate to other research that indicates Caucasian women pay excessive attention to their own appearance, resulting in eating disorders and self-stigmatization, while Asian women show a weaker tendency toward self-stigmatization and negative body image (Le Grange, Stone, & Brownell, 1998).

The attribution-value model of prejudice (Crandall et al., 2001) suggests that, across different cultures, the structure and function of this model might be very different, since the attributions people make may differ according to the social ideology of the cultural group. To test the attribution-value model of prejudice, Crandall et al. (2001) measured weight bias across six different nations including Australia, India, Poland, Turkey, the United States, and Venezuela. This study assessed anti-fat prejudice using the Anti-Fat Attitudes scale (AFA), and measured the cultural value people placed on weight gain using a series of items developed expressly for this study. Results showed that anti-fat attitudes (AFA) significantly correlated with the negative values people placed on weight-gain and the judgement of responsibility for one's weight. Furthermore, the simultaneous high presence of both controllability and cultural value predicted anti-fat prejudice, which indicated that attributions of controllability were most likely to express anti-fat prejudice. However, when the differences between individualistic and collectivistic cultures were examined, only the individualistic countries examined in this study added to the prediction, whereas it was absent in collectivist countries (Crandall et al., 2001). It may be concluded that, although individualism moderated the effect of prejudice, collectivism could not add to the prediction. This may further indicate that a collectivistic cultural orientation could not predict anti-fat attitudes in this study. Finally, the cultural value in the individualistic countries was more closely associated with prejudice against overweight people than in collectivist countries (Crandall et al., 2001).

Other research supports the finding that an individual's expression of weight bias may vary between ethnic identity and cultural group. Crandall and Martinez's (1996) study found that an American sample stigmatized overweight people significantly more than a Mexican sample. Latner et al.'s (2005) research also showed a cultural difference in the acceptance of obese individuals: African-American adults were significantly more tolerant of obese peers than Caucasian peers, indicating greater acceptance and less stigmatization. Moreover, Asian participants had less bias than Caucasian participants. This suggests that negative attitudes associated with obesity within multicultural societies may be dependent on cultural identity and levels of acculturation (Lewis & Van Puymbroel, 2008).

In an early study by McGinnies et al. (1974), the Internal-External Locus of Control (I-E) scale was administered to more than 1,500 students in Australia, Japan, New Zealand, Sweden, and the United States. Results showed that participants from Sweden and Japan scored the highest in external LOC, whereas participants from Australia, the United States, and New Zealand scored the lowest. Although this study was published in 1974, there has not been a more recent study that has produced significant intercultural differences in internal and external LOC across such a large sample of many populations. Despite this, research continues to find significant differences in LOC, and in particular health LOC among diverse ethnic populations. Using the Multidimensional Health Locus of Control Scale (MHLC), Wrightson and Wardle (1997) found intercultural differences in health LOC. Results showed significantly higher external LOC, including chance LOC (CHLC) and powerful others LOC (PHLC), scores for Americans than Europeans and Afro-Caribbean participants. However, results showed that South Asian participants were also significantly higher on internal LOC.

Research indicates weight bias is greater among individuals who hold obese individuals accountable for their health than among individuals who attribute obesity to uncontrollable factors (Klaczynski et al., 2009). However, since intercultural differences in

attributions towards internal and external LOC have also been supported, it is plausible to predict that obesity bias may still vary between individualist and collectivist beliefs (Wrightson & Wardle, 1997). Yamaguchi et al. (2005) found Japanese men were more optimistic about their collective ability in controlling a chance occurrence, relative to their personal ability, whereas American men were more optimistic about their personal ability, relative to collective ability. Thus, if attributions of controllability are different between cultural groups and research has shown attributions of controllability are predictive of weight bias, an individual's beliefs about their ability to control their health may be impacted by cultural identity (Puhl & Brownell, 2003). Although LOC definitions refer to an individual's perception of his or her own behavior, it may be that an individual's LOC has implications for attributing others' actions or faults to within-person characteristics, such that obesity stereotypes are stronger among those who believe obese people should be individually accountable for their own health.

Despite mixed findings of individualism and collectivism affecting cultural orientations towards internal and external LOC, it is important to examine the impact of broader societal factors and their influence on weight bias. Culture is an important variable to research, as theorists are increasingly incorporating culture as an important variable in their theories and models of psychological processes (Van de Vijver, Matsumoto, & Best, 2013).

Self-Compassion: A Potential Variable to Reduce Weight Bias

A variable that has not been examined with weight stigmatization is self-compassion, which refers to both concern with oneself and concern with others (Neff, 2003). A self-compassionate individual will offer non-judgemental understanding of their own pain, shortfalls, and suffering in the context of shared human imperfection (Wasylkiw, Mackinnon, & MacLellan, 2012). Self-compassion does not meet the need to increase one's self-esteem by separating oneself from others, or by making downward social comparisons (Neff, 2003). Neff and Pommier (2012) found associations between self-compassion and other-focused concern. In their study, self-compassion was significantly linked to perspective-taking, forgiveness, and less personal distress among a sample of college undergraduates.

Perspective-taking involves the active consideration of alternative viewpoints, framings, and hypotheses for the reasoning behind the outcome of people's actions, and has been shown to reduce social stereotypes (Galinsky & Moskowitz, 2000). Perspective-taking has been shown to increase the merging between the self and other, in which a greater self-target overlap increases the amount of self-descriptive traits ascribed to another individual. Further, the representation of the target constructed by the perspective-taker becomes more similar to the perspective-taker's own self-representation (Galinsky & Moskowitz, 2000). Increased self-target overlap occurs both when individuals imagine themselves in another's shoes, and when they imagine what it would be like to be that person. When an individual recognizes interconnectedness and equality with others, they are likely to be less judgmental of the self and others (Neff, 2003).

Since individuals who have high self-compassion are more likely to engage in perspective taking, they have a greater ability to identify with someone else's thoughts, feelings, and motivations (Kingsbury, 2009). Consequently, they may be less judgemental of individuals who are overweight or obese. Instead of following the stereotypes held by the general population, individuals who have high self-compassion may critically evaluate the accuracy of those stereotypes. However, very little empirical research has investigated whether individuals with high self-compassion have low levels of bias against overweight and obese individuals, and no direct conclusion thus far has been made. If self-compassion does indeed reduce stereotypical beliefs about overweight and obese people, research towards the reduction of weight stigmatization can be better focused (Jeong, 2008). Since research has not yet shown a dependable mechanism for reducing weight bias, it is important for researchers to continue finding effective ways to decrease anti-fat prejudice and explore ways to reduce weight stigmatization (McHugh & Kasardo, 2012).

The Current Study

This study purported to explore the relationship between LOC, culture, and self-compassion, and its influence on the construction of weight stigmatization. The vast majority of research on physical attractiveness stereotyping has not examined intercultural differences in weight bias, thus raising questions about cross-cultural generality of negative stereotypes projected towards overweight and obese individuals (Shaffer, et al., 2000). Moreover, there is limited cultural research conducted in Australia and since there is a rising obesity prevalence rate, it is important to understand how society in this country perceives overweight and obese individuals (Mercer, 2012). Since Australia is a multi-cultural society, understanding how the broader societal influence of perceptions towards overweight and obese individuals can target a wider population in reducing bias towards overweight and obese individuals (Mercer, 2012). Furthermore, self-compassion is gaining the attention of researchers as an effective way of relating to oneself, which may in fact affect how we see others (Neff, 2003; Neff & Pommier 2012). The present study examined self-compassion as a potential variable that may reduce negative beliefs and attitudes towards overweight and obese persons.

Hypotheses

1. Crandall et al. (2001) found that the simultaneous high presence of both controllability and cultural value predicted anti-fat prejudice. Thus, it was predicted that internal LOC and individualism would be a significant predictor of weight bias.

2. Collectivism and external LOC were predicted to be significant negative predictors of weight bias (Crandall et al., 2001).

3. Based on Neff and Pommier's (2012) findings of a significant association between self-compassion and other-focused concern, it was predicted that individuals who rated high in self-compassion would be a significant negative predictor of weight bias, over and above the effects of culture and LOC.

Method

Participants

A total of 138 participants (78 females; 60 males) volunteered to participate in the study. The majority of the sample consisted of Bachelor education students (n = 80) and included high-school students (n = 24), technical and further education (TAFE) students (n = 16), post-graduate students (n = 7), and Masters students (n = 11). All of the participants included in this study were above the age of 18, and the majority were young adults (M = 23.00). The sample also attempted to include a wide variety of participants from different cultural backgrounds. A majority of the sample were Australian (n = 84), and the other participants were American (n = 7), South American (n = 1), European (n = 10), Middle Eastern (n = 2), Asian (n = 28), and African (n = 6).

Measures

All participants completed the following scales: Attitude Towards Obese Persons (ATOP), Beliefs About Obese Persons (BAOP), Anti-Fat Attitudes (AFA), Self-Compassion Scale (SCS), Individualism/Collectivism Scale (IND/COL), Multidimensional Health Locus of Control Scales (MHLC-Form B), and the Marlowe-Crowne Social Desirability Scale (MCSD Short-Form).

Attitude Towards Obese Person's Scale (ATOP). Alison, Basile, and Yuker (1991) developed the ATOP, which consists of 20 items that measure prejudice towards obese persons (e.g., "Obese people are as happy as non-obese people") and reliability has been established (α = .76; Puhl, Moss-Racusin, & Schwartz, 2007). This scale uses a 6-point Likert scale that ranges from -3 (strongly disagree) to 3 (strongly agree).

Beliefs About Obese Person's Scale (BAOP). Alison et al., (1991) developed the BAOP, which consists of 10 items (e.g., "Obesity often occurs when eating is used as a form of compensation for lack of love or attention") and reliability has been established (α = .71; Puhl, Masheb, White, & Grilo, 2010). The BAOP measures the extent that one believes obesity is under the control of the obese person. This scale uses a 6-point Likert scale that ranges from -3 (strongly disagree) to 3 (strongly agree).

Anti-Fat Attitudes Questionnaire (AFA). Crandall and Schiffhauer (1994) developed the AFA, which consists of 13 items that measure attitudes toward overweight and obese individuals. The measure consists of three subscales: the Dislike subscale (α = .84), which measures apathy towards overweight/obese individuals (e.g., "I really don't like fat people much"); the Fear of Fat subscale (α = .79), which measures self-related concern about weight (e.g., "I feel disgusted with myself when I gain weight"); and the Willpower subscale (α = .66), which measures beliefs about controllability of weight (e.g., "People who weigh too much could lose at least some part of their weight through a little exercise"). This scale uses a 10-point Likert scale that ranges from 0 (very strongly disagree) to 9 (very strongly agree).

Self Compassion Scale (SCS). Neff (2003) developed the SCS, a 26-item questionnaire that measures individual self-compassion, which developers of this tool defined as being kind and understanding towards oneself in times of pain or failure rather than being harshly self-critical. The measure consists of six subscales: Self-Kindness, Self-Judgment, Common Humanity, Isolation, Mindfulness, and Overidentification. This scale uses a 5-point Likert scale that ranges from 1 (almost never) to 5 (almost always) and reliability has been established.

Individualism/Collectivism Scale (IND/COL). Oyserman (1993) created the IND/COL Scale, which measures how much an individual may identify with individualistic or collectivistic values. This scale consists of 24 items which include six subscales: Common Fate (e.g., "In the end a person feels closest to members of his/her own religious, national, or ethnic group"), Familialism (e.g., "Family is more important to me than almost anything else"), Interrelatedness (e.g., "To know who I really am, you must see me with members of my group"), Uniqueness (e.g., "It is important for me to be myself"), Freedom/Happiness (e.g., "My personal happiness is more important to me than anything else"), and Personal Achievement (e.g., "To know who I really am, you must examine my achievements and accomplishments"). This scale uses a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Multidimensional Health Locus of Control Scales (MHLC-Form B). The MDHL-Form B is an 18-item scale created by Wallston, Stein, and Smith (1994). It assesses a person's beliefs regarding whether his or her health status is determined by internal controllable factors, a matter of chance, or external control of others. The MHLC contains three subscales: Internality (e.g., "If I become sick, I have the power to make myself well again"), Powerful Others-Externality (e.g., "If I see an excellent doctor regularly, I am less likely to have health problems"), and Chance-Externality (e.g., "Often I feel that no matter what I do, if I am going to get sick, I will get sick"; Wallston & Wallston, 1978). This scale uses a 6-point Likert Scale (1 = strongly disagree, 6 = strongly agree).

The Marlowe-Crowne Social Desirability Scale (MCSD-Short-Form). The MCSD has been used as an additional measure to assess the impact of social desirability on self-report measures specific to the primary purpose of the investigation (Crowne & Marlowe, 1960). The short version of the scale has been developed by Ray (1984), which is an item that consists of 13 items, which was used for the purpose of this research. The MCDS was used in the present study to assess the effects of socially desirable responding from participants as some obtained course credit for participating.

Procedure

The Bond University Human Research Ethics Committee (BUHREC) approved all materials and procedures selected for the current study. Participants were recruited on the basis of convenience sampling through social networking websites. A unique survey address was distributed to participants containing a link to an explanatory statement outlining the purpose of the study, consent procedures, and an approximate time allocated for participation (25 minutes). Participants were presented with an explanatory statement outlining the study aims and consent, and were then required to complete demographic items and outcome measures. There were no identifying markers or questions on the survey, ensuring complete participant anonymity.

Design

Three independent variables including individualism-collectivism, LOC, and self-

compassion were measured using the IND/COL scale, MHLC scale, and the SCS. The dependent variable, weight stigmatization, was measured through the AFA questionnaire, BAOP scale, and the ATOP scale. Each independent variable was assessed in terms of what it added to the order of entry, as per Tabachnick and Fidell (2013). No multivariate outliers were present in the data.

Results

To analyze the results of the survey, a Hierarchical Multiple Regression (HMR) was conducted. The simultaneous presence of both individualism and internal LOC (measured by the Internality subscale from the MHLC scale) and the simultaneous presence of both collectivism and external LOC (measured by the Powerful Others subscale and the Chance subscale from the MHLC) were entered separately to predict AFA, ATOP, and BAOP scores. Self-compassion was analyzed to predict a unique amount of additional variance after controlling for culture and LOC.

To control for social desirability, the MCSD scale was added in Step 1 of the analysis. The three different subscales for the MHLC were analyzed separately in Step 2 of the analysis and IND/COL was added to Step 2. Self-compassion was entered in Step 3 of the analyses to examine whether it predicted weight stigmatization over and above the effects of culture and LOC. A total of nine HMR were performed.

An HMR was conducted to assess whether self-compassion would predict less AFA over and above the simultaneous presence of individualism (IND) and internal LOC (I/LOC). To predict I/LOC, the Internality subscale was used from the MHLC. In Step 1, social desirability was entered to control for response bias and only accounted for a small 0.20% of the variance, and was found to be a non-significant predictor. This indicated that social desirability did not significantly affect AFA. IND and I/LOC were entered simultaneously in Step 2, and contrary to expectations, only accounted for a small 0.20% of the variance and were found to be non-significant predictors. In Step 3, self-compassion was added to the regression, and it was found to be a significant negative predictor of AFA. This indicated that when self-compassion increased, AFA decreased, $F(1, 134) = 10.70$, $p < .001$. Specifically, self-compassion predicted 7.5% of the variance in AFA over and above the effects of individualism and I/LOC, as shown in Table 1.

Table 1
Hierarchical Multiple Regression Analysis Predicting Anti-Fat-Attitudes (AFA) from Social Desireability (SD), Individualism (IND), and Internality (I/LOC)

Predictor	B	β	R^2	Adjusted R^2	R^2 *Change*
Step 1			.002	-.006	.002
SDS	-.04	-.039			
Step 2			.003	-.019	.002
SDS	-.038	-.038			
IND	-.027	-.027			
I/LOC	.036	.036			
Step 3			.079	.050	.075**
SDS	-.088	-.088			
IND	.027	.027			
I/LOC	.086	.086			
SC	-.286**	-.287**			

*$p < .05$, **$p < .001$

In the second HMR and at Step 1 of the analysis, social desirability accounted for 0.00% of the variance, and was non-significant. In Step 2 of the analysis, IND and I/LOC accounted for a non-significant 0.90% of the variance in ATOP over and above social desirability. In Step 3 of the analysis, the model accounted for 0.00% of the variance, indicating that individualism, internal LOC, and self-compassion were unable to predict attitudes towards obesity, as displayed in Table 2.

In the third HMR, social desirability accounted for 0.90% of the variance, and was non-significant at Step 1. In Step 2, IND and I/LOC accounted for 4.70% of the variance, and I/LOC was found to be a significant negative predictor, $F(1, 134) = 3.290$, $p < .05$. When these variables were simultaneously added in Step 2, almost all of the variance was accounted for by I/LOC. As a result, as I/LOC increased, BAOP decreased. In Step 3, self-compassion only accounted for 0.20% of the variance, and was non-significant (see Table 3).

In the fourth HMR, social desirability only

accounted for 0.20% of the variance in AFA, and was non-significant. In Step 2, Powerful Others/LOC and collectivism accounted for 7.10% of the variance in AFA, $F(2, 132) = 5.01$, $p < .05$, with collectivism being a significant negative predictor and Powerful Others/LOC being a significant positive predictor. In Step 3, self-compassion accounted for 5.20% of the variance in AFA above and beyond the other variables, and was significant, $F(1, 134) = 7.795$, $p < .05$, indicating that self-compassion was able to predict AFA over and above the effects of Powerful Others/LOC and collectivism, as displayed in Table 4.

In the fifth HMR, the Chance subscale was analyzed simultaneously with collectivism. In Step 1, social desirability accounted for only 0.20% of the variance in AFA and was non-significant. In Step 2, Chance/LOC and collectivism only accounted for a small 0.16% of the variance in AFA, which was non-significant. In Step 3 of the analysis self-compassion accounted for 5.80% of the variance over and above the effects of the other variables. Self-compassion was found to be a significant negative predictor of AFA, $F(1, 134) = 8.23$, $p < .05$. Therefore, AFA were greater for individuals with lower self-compassion, as displayed in Table 5.

The sixth HMR found social desirability at Step 1 accounted for a non-significant 0.00% of the variance. In Step 2, collectivism and Powerful Others/LOC only accounted for 0.50% of the variance in ATOP , which was non-significant. In Step 3, self-compassion accounted for 0.00% of the variance in ATOP, and was non-significant as displayed in Table 6.

The seventh HMR found social desirability accounted for a non-significant 0.00% of the variance. In Step 2, collectivism and Chance/LOC accounted for a small 0.20% of the variance of ATOP, which was non-significant. In Step 3, self-compassion accounted for 0.10% of the variance in ATOP above and beyond the other vairables and was non-significant, as displayed in Table 7.

The eighth HRM used the Powerful Others/LOC subscale from the MDHL, collectivism, and self-compassion to predict BAOP. In Step 1, social desirability accounted for 0.10% of the variance in BAOP and was not a significant predictor of BAOP $F(1,134) = 1.18$, $p = .28$. In Step 2, collectivism and Chance/LOC accounted for a small 0.03% of additional variance of BAOP and were not significant predictors, $F(2, 132) = 1.10$, $p = .34$. In Step 3, self-compassion accounted for 0.00% of the variance in BAOP and was not a significant predictor of BAOP, $F(1, 131) = .03$, $p = .87$, as displayed in Table 8.

The final HMR found that social desirability accounted for 0.90% of the variance in BAOP and was non-significant. In Step 2, collectivism and Chance/LOC accounted for 6.10% of the variance above and beyond social desirability, significantly predicting ATOP, $F(2, 132) = 4.296$, $p < .05$. Thus, when collectivism and Powerful Others/LOC increased, BAOP increased. In Step 3, self-compassion accounted for 0.10% of the variance in ATOP but was non-significant, as displayed in Table 9.

Summary of Significant Results

In the first analysis, self-compassion was found to be a significant negative predictor of AFA. When self-compassion increased, AFA decreased. Internal LOC and individualism were not found to be significant predictors of AFA. In the third analysis, the simultaneous presence of both individualism and internal LOC were found to be significant predictors of BAOP. Almost all the variance, however, was accounted for by internal LOC. Specifically, as internal LOC increased, positive beliefs about obese people decreased. Self-compassion was not a significant predictor of BOAP.

In the fourth analysis, collectivism and Powerful Others/LOC significantly predicted AFA. Specifically, when collectivism increased, AFA decreased. Powerful Others/LOC did not decrease AFA scores. In addition, self-compassion significantly predicted AFA over and above the effects of collectivism and Powerful Others/LOC. As self-compassion increased, AFA decreased. In the fifth analysis, self-compassion significantly predicted AFA over and above the effects of collectivism and Chance/LOC. Specifically, as self-compassion decreased, AFA increased. Collectivism and Chance/LOC were not found to be significant predictors of AFA. In the ninth analysis, collectivism and Chance/LOC together significantly predicted BAOP. Specifically, when collectivism increased, BAOP increased, but Chance/LOC had a greater impact than collectivism. And finally, self-compassion was not a significant predictor of BAOP.

Table 2
Hierarchical Multiple Regression Analysis Predicting Attitudes Toward Obese Persons (ATOP) from Social Desirability (SD), Individualism (IND), Internality (I/LOC)

Predictor	B	β	R^2	Adjusted R^2	R^2 Change
Step 1			.000	-.007	.000
SDS	.018	.086			
Step 2			.000	-.013	.009
SDS	.029	.089			
IND	-.003	.089			
I/LOC	-.095	.087			
Step 3			.010	-.020	.000
SDS	.033	.090			
IND	-.006	.091			
I/LOC	-.098	.089			
SC	.020	.089			

*$p < .05$, **$p < .001$

Table 3
Hierarchical Multiple Regression Analysis Predicting Beliefs About Obese Persons (BAOP) from Social Desirability (SD), Individualism (IND), Internality (I/LOC), Self-Compassion (SC)

Predictor	B	β	R^2	Adjusted R^2	R^2 Change
Step 1					
SDS	.094	.087	.009	.001	.009
Step 2					
SDS	.118	.087	.047	.034	.047*
IND	.003	.087			
I/LOC	-.219*	.086			
Step 3			.002	.029	.002
SDS	.125	.089			
IND	-.005	.089			
I/LOC	-.226	.087			
SC	.043	.088			

*$p < .05$, **$p < .001$

Table 4
Hierarchical Multiple Regression Analysis Predicting Anti-Fat Attitudes (AFA) from Social Desirability (SD), Collectivism (COL), Powerful Others (PO/LOC)

Predictor	B	β	R^2	Adjusted R^2	R^2 Change
Step 1			.002	-.006	.002
SDS	-.040	.087			
Step 2			.072	.051	.071*
SDS	-.014	.084			
COL	-.198*	.086			
PO/LOC	.251*	.092			
Step 3			.124	.097	.052*
SDS	-.055	.086			
COL	-.129	.093			
PO/LOC	.240	.087			
SC	-.238*	.085			

*$p < .05$, **$p < .001$

Table 5
Hierarchical Multiple Regression Analysis Predicting Anti-Fat Attitudes (AFA) from Social Desirability (SD), Collectivism (COL), Chance (Chance/LOC)

Predictor	B	β	R^2	Adjusted R^2	R^2 Change
Step 1			.002	-.006	.002
SDS	-.040	.087			
Step 2			.018	-.005	.016
SDS	-.018	.089			
COL	-.120	.091			
Chance/LOC	.043	.087			
Step 3			.076	.047	.058*
SDS	-.062	.088			
COL	-.049	.092			
Chance/LOC	.051	.085			
SC	-.251*	.087			

*$p < .05$, **$p < .001$

Table 6
Hierarchical Multiple Regression Analysis Predicting Attitudes Towards Obese Persons (ATOP) from Social Desirability (SD), Collectivism (COL), Powerful Others (PO/LOC)

Predictor	B	β	R^2	Adjusted R^2	R^2 *Change*
Step 1			.000	-.007	.000
SDS	.018	.086			
Step 2			.006	-.17	.005
SDS	.003	.088			
COL	.077	.094			
PO/LOC	-.013	.091			
Step 3			.006	-.024	.000
SDS	.000	.090			
COL	.084	.098			
PO/LOC	-.014	.081			
SC	-.022	.090			

*$p < .05$, **$p < .001$

Table 7
Hierarchical Multiple Regression Analysis Predicting Attitudes Towards Obese Persons (ATOP) from Social Desirability (SD), Collectivism (COL), Chance (Chance/LOC)

Predictor	B	β	R^2	Adjusted R^2	R^2 *Change*
Step 1			.000	-.007	.000
SDS	.018	.086			
Step 2			.021	-.001	.021
SDS	-.007	.088			
COL	.088	.090			
Chance/LOC	.126	.086			
Step 3			.022	-.088	.001
SDS	-.011	.090			
COL	.095	.094			
Chance/LOC	.127	.086			
SC	-.025	.089			

*$p < .05$, **$p < .001$

Table 8
Hierarchical Multiple Regression Analysis Predicting Beliefs About Obese Persons (BAOP) from Social Desirability (SD), Collectivism (COL), Powerful Others (PO/LOC)

Predictor	B	β	R^2	Adjusted R^2	R^2 *Change*
Step 1			.009	.001	.009
SDS	.094	.087			
Step 2			.025	.003	.026
SDS	.081	.088			
COL	.030	.094			
PO/LOC	.118	.097			
Step 3			.025	-.005	.000
SDS	.079	.090			
COL	.034	.098			
PO/LOC	.117	.091			
SC	-.014	.090			

*$p < .05$, **$p < .001$

Table 9
Hierarchical Multiple Regression Analysis Predicting Beliefs About Obese Persons (BAOP) from Social Desirability (SD), Collectivism (COL), Chance (Chance/LOC)

Predictor	B	β	R^2	Adjusted R^2	R^2 *Change*
Step 1			.009	.001	.009
SDS	.094	.087			
Step 2			.069	.048	.061*
SDS	.062	.087			
COL	.091*	.088			
Chance/LOC	.240*	.085			
Step 3			.070	.042	.001
SDS	.057	.088			
COL	.099	.082			
Chance/LOC	.241	.085			
SC	-.028	.087			

*$p < .05$, **$p < .001$

Discussion

The aim of the study was to explore the relationship between culture, LOC, and self-compassion in conceptualizing weight stigmatization. The first hypothesis that individualism and internal LOC would significantly predict weight bias was supported; however, unexpected findings were found. Individualism and internal LOC were significant predictors of BAOP, but almost all the effects were accounted for by internal LOC, which was found to be a significant negative predictor. Thus, contrary to expectation, internal LOC decreased BAOP. Past research using the MHLC scale has shown the predictive utility of LOC in understanding various behaviors including smoking reduction, birth control utilization, weight loss, information-seeking, adherence to medication regimes, and fighting diseases (Wallston & Wallston, 1978).

The second hypothesis, that collectivism and external LOC would predict weight bias, was partially supported. Collectivism and Powerful Others/LOC significantly predicted AFA; however, collectivism decreased AFA, while Powerful Others/LOC did not. Furthermore, collectivism and Chance/LOC jointly significantly predicted BAOP; while greater collectivism decreased BAOP, Chance/LOC did not decrease BAOP. These findings suggest that, although collectivism was able to decrease weight bias, external LOC (i.e., as measured with Chance and Powerful Others/LOC variables) did not decrease weight bias. These results indicate that individuals that identified with collectivist beliefs were less likely to have weight bias.

This suggests that social judgments, such as first impressions of others, are less important to individuals who identify with collectivist orientations. These findings are supported by research such as Crandall and Martinez's (1996) and Latner et al.'s (2005) studies, who found multicultural differences in obesity bias. Despite the significant effects of collectivism, Powerful Others/LOC and Chance/LOC did not decrease the effects of weight stigmatization. As mentioned above, because of the lack of internal and predictive validity of the MHLC, future research should consider using a more general measure of LOC, such as Rotter's (1966) Locus of Control Scale, and look at other variables such as self-efficacy.

The third hypothesis, that self-compassion would significantly reduce weight stigmatization over and above the effects of culture and LOC, was supported. Specifically, self-compassion was a significant negative predictor of AFA, over and above the effects of collectivism and Powerful Others. This novel finding is particularly important, as this reflects that self-compassion may be a dependable mechanism for reducing anti-fat prejudice, and thus reducing weight stigmatization. Future studies should seek to examine this relationship further, in order to clarify how this association may be used to inform intervention.

The current study represents one of the first efforts to examine self-compassion in the conceptualization of weight stigmatization. Research indicates that weight bias occurs irrespective of an individual's body weight; thus, even people who are overweight are externalizing the negative attributes that society has constructed (Puhl & Brownell, 2003; Puhl et al., 2008). This form of self-devaluation and self-condemnation has a great impact on one's psychological health (Latner et al., 2005; Maclean et al., 2009; McHugh & Kasardo 2012). However, since self-compassion has been found to be negatively associated with weight bias, this variable may be incorporated into weight stigmatization reduction efforts. Self-compassion has been associated with adaptive psychological functioning, predicted positive mental health, and serves as a buffer against the negative consequences of self-judgement, self-criticism and shame (Neff, 2003). Furthermore, Wasylkiw et al. (2012) found that self-compassion was associated with less body preoccupation, fewer concerns about weight, and greater appreciation towards one's body in young female undergraduate students.

Implications and Future Research

It is of interest then that self-compassion training may be beneficial for individuals in the promotion of positive body image, which may potentially reduce the effects of weight stigmatization and bias. Self-compassion can be promoted through individual educational-based approaches. Furthermore, this may be promoted through media health campaigns in order to target a wider audience, thus increasing their ability to critically analyze their judgments and understand the perspectives of those who are overweight and obese.

The critical findings from this research were that self-compassion and collectivism were each significant negative predictors of weight stigmatization, thus reducing bias against overweight and obese individuals. Moreover, self-compassion was able to predict a unique amount of additional variance over and above the effects of collectivism.

Limitations

The findings of this study had mixed results as the AFA questionnaire, BAOP scale, and ATOP scale were together expected to be predicted by other variables. The ATOP was not significantly predicted by other variables in the experiment. Although the AFA and BAOP were predicted by other variables, the results of the HMR did not correspond. Future replication studies should seek to further explore why this may have occurred. For instance, although self-compassion predicted AFA, it was not a significant predictor of BAOP.

Although researchers attempted to incorporate a culturally diverse sample in the current study, the majority of participants were from Australia; however, a significant effect of culture for collectivism was still found. Thus, despite the limited amount of participants from collectivist cultures, collectivism was still a significant predictor of weight stigmatization, which may also reduce bias. The current study used a non-experimental design for data collection; thus, causal relationships cannot be established.

Further issues with the design include ordering effect, as the scales were not counterbalanced. Measurement issues that exist within the MHLC scale may also reduce the predictive validity of this study, as results that were inconsistent with prior research were found for the multidimensional health LOC. In spite of these limitations, this research was able to find significant novel variables that reduced the effects of weight stigmatization and also established constructive ways in conceptualizing bias of overweight and obese persons.

Conclusion

Self-compassion is a novel variable that has not been conceptualized with weight stigmatization prior to this research. The findings from this study imply that self-compassion is able to reduce weight stigmatization over and above the effects of collectivism, which was also found to be a significant negative predictor of weight stigmatization. Through understanding the underlying causes of weight stigmatization, a more comprehensive construction of weight stigmatization can be formed. This in turn will further help to evaluate existing models of stigmatization as well as promote the development of new models (Lewis & Van Puymbroel, 2008; Puhl & Brownell, 2003).

It is important to thoroughly understand the causes of weight stigmatization and the social and psychological consequences of it on overweight and obese individuals. The stigmatization of obesity itself may independently contribute to the health risks associated with obesity (Maclean et al., 2009). Consequences of weight bias may lead individuals to isolate themselves or socially withdraw from society, which could contribute to the exacerbation of obesity through increasing the likelihood of overeating and sedentary activity (Puhl & Brownell, 2003). Further research is necessary to continue exploring the role of these variables, in addition to other related psychological variables such as adverse childhood experiences (Felitti et al., 1998) and the stereotype threat spillover (Inzlicht & Kang, 2010) in order to more comprehensively inform theory and treatment models.

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